Syllabus CVEG 563-3
Introduction to Computational Fluid Dynamics

Instructor name: R. Panneer Selvam

Contact information: Ph: 479-575-5356 (office), email: rps@uark.edu. **Skype**: r.panneer.selvam
You can call me to my office number and if I am not there please send an email with a number to contact you. I will either email you or contact you by phone. I can use skype whenever it is necessary to see and talk.

Course Description:

Introduction to fluid mechanics, understanding of CFD application in engineering, methods to solve large system of equations relating to CFD, CFD for diffusion and convection type problems, CFD for incompressible Navier-Stokes (NS) equations, use of graphic visualization in CFD.

Required Textbook:
Include ISBN
Text Book: Class notes prepared by R.P. Selvam

Course Goals/Objectives:
Learn to be proficient in the following topics:

1. *Understanding of CFD application in engineering*
2. *Methods to solve large system of equations as relate to engineering problems*
3. *Application of CFD to analyze 2D problems using NS equations*
4. *Use of graphic visualization*
5. *Introduction to commercial software and the trend in the industry*

Course Requirements:
Assignments: Assignments for each week would be due by midnight every Sunday
Projects: No projects for this class
Exams: Two in class exam and one final exam will be given for this class. The in class exams need to be proctored.
Presentations: None

Evaluation Procedures:

In-class exams 2 @ 100 ea.	= 200
Final Exam	= 100
Assignments	= 100
Total	= 400

A 90%+, B 80 to 89%, C 70 to 79%, D 60 to 69%, F 59 or less

Academic Honesty Policy:

- The University of Arkansas strives to be a center of academic excellence. As part of our Statement of Ethics, the University strives to preserve academic honor and integrity by repudiating all forms of academic and intellectual dishonesty, including cheating, plagiarism and all other forms of academic dishonesty. Academic dishonesty is unacceptable and is subject to a disciplinary response.

- Students who are caught cheating or committing plagiarism may be given a failing grade in the course by the professor and may be subject to dismissal or further discipline.

- Plagiarism is often misunderstood as referring only to passing off another's writing as one's own. The definition also extends to ideas and arguments taken from others' work without proper citing of the original source. It is also not permissible to construct papers or reports by merely "cutting and pasting" and then just citing another's work. In writing for homework or projects, you should read and learn, process information through your mind, relate ideas, and then express your take on the material you've read **in your own words**. Cite the references where you found your information. If you do use someone else's words, do so sparingly, use quotation marks, **and** cite.

The complete Academic Integrity Policy is available at the Provost and Vice Chancellor for Academic Affair web site, http://provost.uark.edu.

Inclement Weather Policy:
Not applicable.

Class Procedures

The students can contact me through my email, office phone and skype. For skype if the students arrange a time to talk to me by email or phone. Then only I can keep the skype active.

In case of late assignments or taking the exam they need to work with me for extension or alternate dates. Unless previous permission is not worked out, late assignment will not be considered for grade. The extensions are based on individual situations.

Schedule:

Course Units/Calendar Table

Week	Chapters & Lectures Covered	Assignments, projects, papers, quizzes and exams	Due by Date (All homework assignments are due each Sunday, 11:55 PM CST)
1 **8/20 to 8/26**	Lectures 1, -4	• Assignment #1: p#1-2 •	HW#1-Due 8/26
2 **8/27 to 9/2**	Lectures: 5-8	• Assignment # 2: p#3-p#6 •	HW#2-Due 9/2
3 **9/3 to 9/9**	Lectures: 9-12	• Assignment # 3: p#7-p#8 • Exam #1	HW#3-Due 9/9 Take Exam #1-this week
4 **9/10 to 9/16**	Lectures: 13-17	• Assignment #4: p#9-#10 •	HW#4-Due 9/16
5 **9/17 to 9/23**	Lectures: 18-21	• Assignement #5: p#11 •	HW#5-Due 9/23
6 **9/24 to 9/30**	Chapters: Lectures: 22-25	• Assignment #6:p#12 • Exam #2	Take Exam#2 this week-HW-Due 9/30
7 **10/1 to 10/7**	Chapters : Lectures:26-29	• Assignment #7:p13-square cylinder equal spacing	HW Due 10/7 Final exam?
8 **10/8 to 10/9**	Lectures:	• Final Exam	Final exam this week-10/09 last

Caveat: changes to syllabus
"The above schedule and procedures in this course are subject to change in the event of extenuating circumstances."

First email:

Welcome to the CVEG 563.

First of all, please send your phone number and when I can call etc. So that in case we need to talk we can talk. Also please feel free to give me a call when things are not clear.

1. **Watching the tapes**: there are totally 29 tapes. Please arrange your time so that each week you watch at the least 4 tapes for the 8 week class.
2. **Home work**: The home works are in the class discussions. So please watch your tapes to get the HW. P#13 is replaced from presentation to square cylinder equal spacing as HW.
3. **Class Notes**: The class notes are available in the blackboard.
4. **Class lecture write up**: I am emailing it to you all via drop box
5. **Class program**: I will send them by drop box.
   Need to send it by drop box other than word file.
6. Please inform me your proctor. There will be in class exam for which I need your proctor.
7. Email me your contact info (like phone number etc.) so that I can talk to in case of clarifications etc.
8. My skype id: r.panneer.selvam . If you want a group discussion weekly once I can try.
9. Please feel free to give a call if there are any issues.
10. Since I taught some time ago I don't remember all the details. When you talk to me or correspond with me please help me to locate myself before our discussions. Remember you watch the video and I am not.
11. I assume you all got all the materials from blackboard and through drop box.
12. I wish you all the best in finishing in time.

Programs to students:

Diff12.exe   Useful to do p#6-input by prompt-give program listing to the class
ISOLV1.exe   useful to do exam#1-input by prompt-look-cbook-p68
CV-UQ.exe   p#10-input by prompt
CAVNU5.exe   cavity problem-p#11-cbook-p115
BFSTEP.exe   Backward facing step problem-p#12-cbook-p117. Need input file bfs-i.txt
RECYL2.exe   square cylinder-p#13-cbook-p120

Two papers also included in the same directory which are used as bench mark problems for running the programs.